

اسم الحسنى

Medical Nutrition Therapy (MNT) in management of adult hypertriglyceridemia

Hypertriglyceridemia

American Heart Association/American college of cardiology/multisociety:

- Normal TG (≤ 175 mg/dl)
- Moderate TG (175-499 mg/dl)
- Severe (≥ 500 mg/dl)

European Society of Cardiology:

- Normal TG (< 150 mg/dl)
- Mild-Moderate TG (150-880 mg/dl)
- Severe (≥ 880 mg/dl)

Endocrine Society:

- Normal TG (< 150 mg/dl)
- Mild TG (150-199 mg/dl)
- Moderate (200-999 mg/dl)
- Sever (1000-1999)
- Very Sever (≥ 2000)

Effectiveness of Medical Nutrition Therapy (MNT) in management of adult hypertriglyceridemia

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Current guidelines and expert consensus:

- **MNT: First-line therapy** for treatment of *hypertriglyceridemia*
- **Adjusting in lifestyle factors:** The initial and most important approach for treating individuals with hypertriglyceridemia
- **MNT** provide by registered dietitian nutritionists improved triglyceride by **-32.5 mg/dl (-57.7, -7.3)**

Nutrition interventions for adults with dyslipidemia: A Clinical Perspective from the National Lipid Association☆

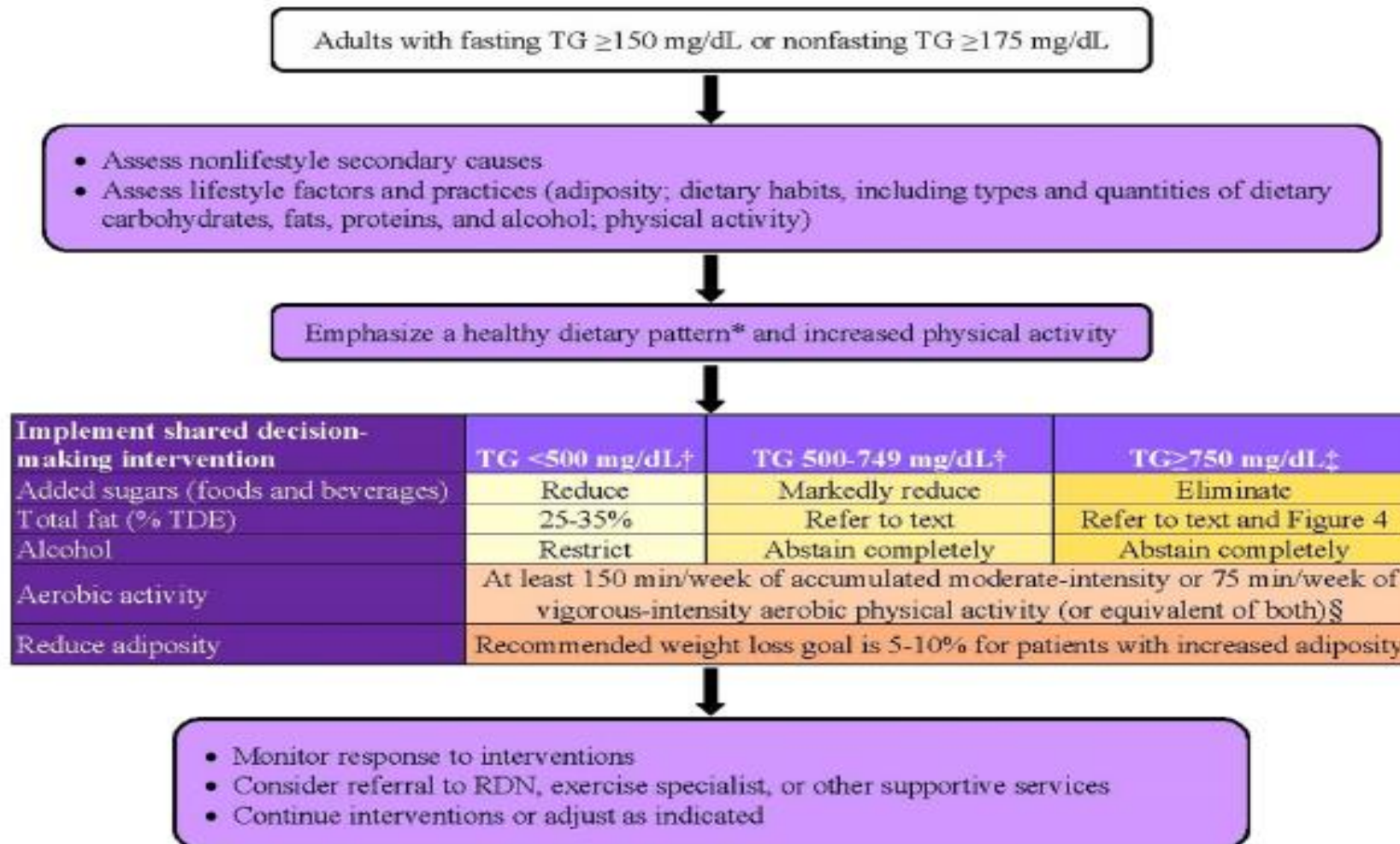
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Lifestyle recommendations for hypertriglyceridemia (cont'd)

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Lifestyle recommendations for hypertriglyceridemia

1) A *practical first step* of lifestyle modification: Alcohol restriction

Implement shared decision-making intervention	TG <500 mg/dL [†]	TG 500-749 mg/dL [†]	TG ≥750 mg/dL [‡]
Added sugars (foods and beverages)	Reduce	Markedly reduce	Eliminate
Total fat (% TDE)	25-35%	Refer to text	Refer to text and Figure 4
Alcohol	Restrict	Abstain completely	Abstain completely
Aerobic activity	At least 150 min/week of accumulated moderate-intensity or 75 min/week of vigorous-intensity aerobic physical activity (or equivalent of both) [§]		
Reduce adiposity	Recommended weight loss goal is 5-10% for patients with increased adiposity		

- Jacobson TA et al. J Clin Lipidol. 2015;9(6 Suppl):S1-122.e1.
- Subramanian S. The journal of clinical endocrinology and metabolism; 2022: 107: 1686-1697

Lifestyle recommendations for hypertriglyceridemia

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A *practical second step* of lifestyle modification: Weight loss

Implement shared decision-making intervention	TG <500 mg/dL [†]	TG 500-749 mg/dL [†]	TG ≥750 mg/dL [‡]
Added sugars (foods and beverages)	Reduce	Markedly reduce	Eliminate
Total fat (% TDE)	25-35%	Refer to text	Refer to text and Figure 4
Alcohol	Restrict	Abstain completely	Abstain completely
Aerobic activity	At least 150 min/week of accumulated moderate-intensity or 75 min/week of vigorous-intensity aerobic physical activity (or equivalent of both) [§]		
Reduce adiposity	Recommended weight loss goal is 5-10% for patients with increased adiposity		

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- Jacobson TA et al. J Clin Lipidol. 2015;9(6 Suppl):S1-122.e1.
- Anagnostis et al. Maturitas 2018; 108: 45–52
- Simha V. BMJ 2020; 371: m3109

Lifestyle recommendations for hypertriglyceridemia

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A *practical second step* of lifestyle modification: Weight loss

Loss of excessive body weight (5–10%)

❖ *Mild TG* (150–199 mg/dl): weight loss of up to **5%**

Modest weight loss: ~ **↓10%** in TG

❖ *Moderate TG* (200–499 mg/dl) *or very high TG* (>500 mg/dl): weight loss of **5–10%**

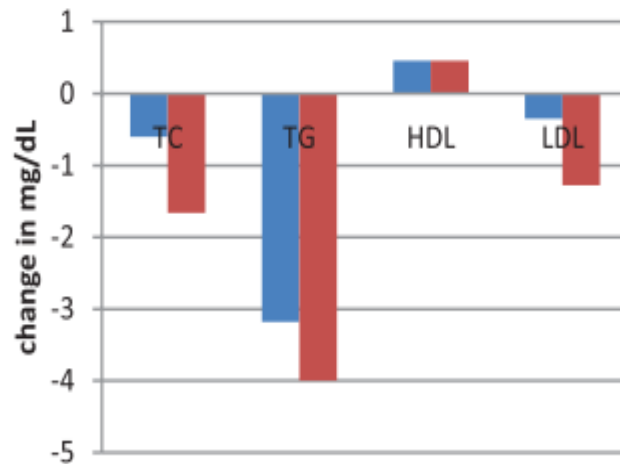
weight loss of 5–10% **→ ↓20%** in TG

Each **1 kg** of weight loss, decline in TG by **1.5 mg/dl**

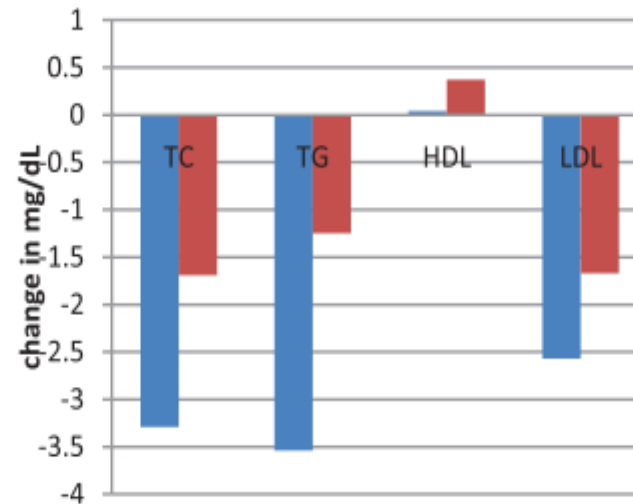
Lifestyle recommendations for hypertriglyceridemia

10

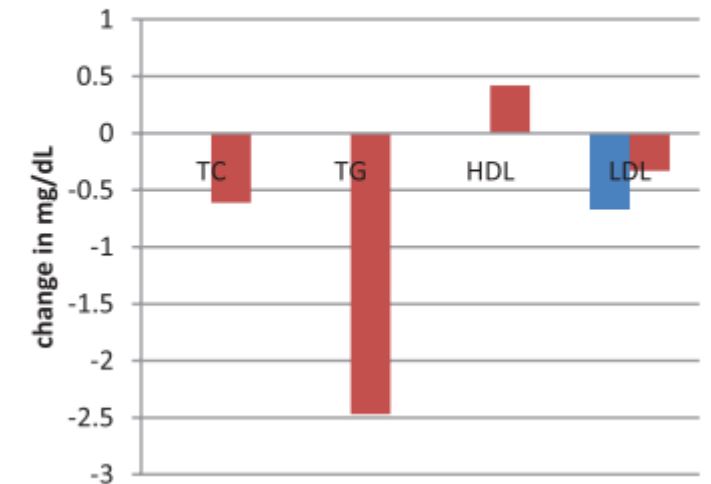
A) Serum lipids change per 1 kg weight loss - Lifestyle (Diet, Exercise or Combined) (30 RCTs, 2434 patients)



C) Serum lipids change per 1 kg weight loss - Pharmacotherapy (35 RCTs, 16333 patients)



E) Serum lipids change per 1 kg weight loss - Bariatric Surgery (8 RCTs, 377 patients)



Lifestyle recommendations for hypertriglyceridemia

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A *practical second step* of lifestyle modification: Weight loss

Implement shared decision-making intervention	TC <500 mg/dL †	TC 500-749 mg/dL †	TC ≥750 mg/dL †
Added sugars (foods and beverages)	Reduce	Markedly reduce	Eliminate
Total fat (% TDE)	25-35%	Refer to text	Refer to text and Figure 4
Alcohol	Restrict	Abstain completely	Abstain completely
Aerobic activity	At least 150 min/week of accumulated moderate-intensity or 75 min/week of vigorous-intensity aerobic physical activity (or equivalent of both) §		
Reduce adiposity	Recommended weight loss goal is 5-10% for patients with increased adiposity		

Lifestyle recommendations for hypertriglyceridemia

Table 8 Features of healthy dietary patterns that meet nutrition recommendations for hypertriglyceridemia based on triglyceride elevation and presence of chylomicronemia^{*53, 161}

Food Groups	Mild-to-Moderate TG Elevation (≥ 150 to < 500 mg/dL) ^{**†}	Severe TG Elevation (≥ 500 to 749 mg/dL) ^{**†}	Severe TG Elevation (≥ 750 mg/dL) – presumed MCS ^{**‡}	Severe TG Elevation (≥ 750 mg/dL) – FCS ^{**‡}
Calories	Meet daily needs with minimally processed nutrient-dense foods	Meet daily needs with minimally processed nutrient-dense foods	Meet daily needs with minimally processed nutrient-dense foods	Meet daily needs with minimally processed nutrient-dense foods; gradually add MCT oil, as needed
Alcohol	Restrict; if choosing to drink: Men ≤ 2 drinks/day ^{**} Women ≤ 1 drink/day ^{**†}	Abstain completely	Abstain completely	Abstain completely
Sugar-sweetened beverages	Restrict	Abstain completely	Abstain completely	Abstain completely
Fruits [#]	Mostly whole fruits, 2 servings/day ^a	Mostly whole fruits, 2 servings/day ^a	Mostly whole fruits, 2 servings/day ^a	Mostly whole fruits, limit to 1 serving/day ^a
Vegetables [#]	2 ½ cups/day ^b	2 ½ cups/day ^b	2 ½ cups/day ^b	2 ½ cups/day ^b
Grains [#]	Mostly fiber-rich whole grains, 4-6 servings/day ^c	Mostly fiber-rich whole grains, 4-6 servings/day ^c	Mostly fiber-rich whole grains, 4-6 servings/day ^c	Individualize ^c
Dairy [#]	Limit full-fat dairy	Limit full-fat dairy	Limit full-fat dairy	Eliminate full-fat dairy

Lifestyle recommendations for hypertriglyceridemia

Beyond weight loss, the type and amount of carbohydrates consumed influences TG

Carbohydrate intake recommendations differ based on the type of hypertriglyceridemia < 749 mg/dl:

- *VLDL-TG output*
- *Familial Chylomicronemia syndrome*

Lifestyle recommendations for hypertriglyceridemia

In VLDL-TG output < 749 mg/dl

➤ Restriction of carbohydrates as well as added sugars is recommended

Limit Refined starches and simple carbohydrates, sugar sweetener beverages

Increase intake of whole grains, fruits and vegetables

However, Carbohydrates from *less refined sources*, such as brown rice and whole-grain bread, *can also raise the TG concentration*

TG are lowered in a dose-response manner with reductions in carbohydrates

Lifestyle recommendations for hypertriglyceridemia *(cont'd)*

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Dietary carbohydrate in VLDL-TG output <749 mg/dl

Limit carbohydrates in diet (**not more than 50-60%** of total energy)

❖ *High TG (200-499 mg/dl)*

➡ Dietary **carbohydrate**: **50-55** % of daily energy intake

❖ *Very High TG (500-749 mg/dl)*

➡ Dietary **carbohydrate**: **45-50** % of daily energy intake

- Jellinger PS et al. Endocr Prac 2017 Apr;23(Suppl 2):1-87
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Vegetables [#]	2 ½ cups/day ^b	2 ½ cups/day ^b	2 ½ cups/day ^b	2 ½ cups/day ^b
Grains [#]	Mostly fiber-rich whole grains, 4-6 servings/day ^c	Mostly fiber-rich whole grains, 4-6 servings/day ^c	Mostly fiber-rich whole grains, 4-6 servings/day ^c	Individualize ^c
Dairy [#]	Limit full-fat dairy	Limit full-fat dairy	Limit full-fat dairy	Eliminate full-fat dairy

Lifestyle recommendations for hypertriglyceridemia

Simple carbohydrate, especially fructose, are responsible for the triglyceride elevating effect of high carbohydrate diet

- Fructose in each serving of Fruits: **6-18 g**
 - Limit *dried fruits* and *fruit juice*
 - Limit fruits rich in fructose: Figs dried; Mango; Grapes, seedless (green or red); Raisins; Pear; Watermelon; Persimmon; Apple

Lifestyle recommendations for hypertriglyceridemia

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Vegetables [#]	2 ½ cups/day ^b	2 ½ cups/day ^b	2 ½ cups/day ^b	2 ½ cups/day ^b
Grains [#]	Mostly fiber-rich whole grains, 4-6 servings/day ^c	Mostly fiber-rich whole grains, 4-6 servings/day ^c	Mostly fiber-rich whole grains, 4-6 servings/day ^c	Individualize ^c

Lifestyle recommendations in hypertriglyceridemia

Beyond restrict SSBs intake, the limit non-nutritive sweeteners (NNSs):

NNSs:

Saccharin (bladder cancer)

Aspartame (phenylketonuria)

Acesulfame-K

Sucralose

Concern regarding replacing NNSs with natural sugar intake:

- ➡ Change in the gut microbiota
- ➡ Alteration in preference toward sweet foods
- ➡ Change in gut-brain signaling

Lifestyle recommendations for hypertriglyceridemia (cont'd)

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3. Dietary fat for:

❖ **Borderline TG** (150-199 mg/dl)

➡ **Total fat:** 25-35 % of daily energy intake

➡ SFA < 7%

➡ MUFA and PUFA : 10–20% of daily energy intake

❖ **High and very high TG** (>200 mg/dl)

➡ **Total fat :** 30–35% of daily energy intake

➡ SFA < 5%

➡ MUFA and PUFA : 10–20% of daily energy intake

- Jellinger PS et al. Endocr Prac 2017 Apr;23(Suppl 2):1-87
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Lifestyle recommendations for hypertriglyceridemia (cont'd)

Table 3 Summary of HTG management recommendations [7, 11]. (Adapted from [30])

All Patients with HTG (Fasting TG $\geq$ 150 mg/dL or Nonfasting $\geq$ 175 mg/dL)^a		
• Identify and address secondary causes, e.g., lifestyle behaviors, medical conditions, medications • Recommend evidence-based dietary patterns that emphasize high-quality carbohydrates and healthful plant- and animal-based proteins, while reducing high-SFA foods and replacing with high-MUFA and high-PUFA foods • Examples: Mediterranean, Dietary Approaches to Stop Hypertension, or vegetarian/vegan • Physical activity: $\geq$150 min/wk moderate- or vigorous-intensity activity; 2 resistance/strength-type exercise sessions/wk • Reduce excess adiposity: 5–10% weight loss in patients with overweight or obesity • Monitor response to interventions, adjust as needed • Referral to an RDN for individualized nutrition therapy is recommended for patients with TG $\geq$ 150–999 mg/dL + CKM syndrome or anytime TG $\geq$ 1000 mg/dL • Consider referral to a clinical lipid specialist for any patient with TG $\geq$ 1000 mg/dL and before, during, or after pregnancy if TG $\geq$ 400 mg/dL • A shared decision-making discussion is essential for the implementation of a treatment plan		
Fasting TG $\geq$ 150–499 mg/dL^a	Nutrition Interventions Fasting TG $\geq$ 500–999 mg/dL^a	Fasting TG $\geq$ 1000 mg/dL^a
• Reduce intake of added sugars with goal of $<$6% TDE • Restrict alcoholic beverages; if choosing to drink, limit to: • $\leq$2 drinks/d for men • $\leq$1 drink/d for women • Total fat intake: 30–35% TDE	• Reduce intake of added sugars with goal of $<$5% TDE • Eliminate alcoholic beverages • Total fat intake: individualize • Some may need 20–25% TDE • Some may tolerate 25–35% TDE	• Eliminate added sugars • Eliminate alcoholic beverages • Total fat intake: $<$10–15% TDE • Fat-soluble vitamin supplementation and MCT oil, as needed
^a Conversion of TG from mg/dL to mmol/L: 150 mg/dL = 1.7 mmol/L; 175 mg/dL = 2.0 mmol/L; 500 mg/dL = 5.6 mmol/L; 1000 mg/dL = 11.3 mmol/L		
Abbreviations: CKM cardiovascular-kidney-metabolic, HTG hypertriglyceridemia, MCT medium-chain triglyceride, MUFA monounsaturated fatty acids, PUFA polyunsaturated fatty acids, RDN registered dietitian nutritionist, SFA saturated fatty acids, TDE total daily energy, TG triglycerides		

Lifestyle recommendations for hypertriglyceridemia (cont'd)

22 Dietary carbohydrate in VLDL-TG output < 749 mg/dl

Replacement of every **1%** of energy intake from a **carbohydrate source by a fat source** has been estimated to reduce serum TG by **1-2%**

► A diet in which some dietary carbohydrate is replaced by unsaturated fatty acids, **but not saturated fatty acids**, may be recommended.

- Increase intake of **unsaturated fatty acids**:
 - Increased intake of MUFA (nuts, seeds, olive oil)
 - Increase intake of PUFA (oily fish/seafoods)
- Decrease intake of **saturated fatty acids**
 - High fat dairy products
 - Meat and processed meat

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Lifestyle recommendations for hypertriglyceridemia

Table 8 Features of healthy dietary patterns that meet nutrition recommendations for hypertriglyceridemia based on triglyceride elevation and presence of chylomicronemia^{*53, 161}

Food Groups	Mild-to-Moderate TG Elevation (≥ 150 to < 500 mg/dL) ^{**†}	Severe TG Elevation (≥ 500 to 749 mg/dL) ^{**†}	Severe TG Elevation (≥ 750 mg/dL) – presumed MCS ^{**‡}	Severe TG Elevation (≥ 750 mg/dL) – FCS ^{**‡}
Dairy [#]	Limit full-fat dairy and/or sugar-sweetened dairy; choose low-fat or fat-free unsweetened dairy or unsweetened dairy alternatives, 3 servings/day ^d	Limit full-fat dairy and/or sugar-sweetened dairy; choose low-fat or fat-free unsweetened dairy or unsweetened dairy alternatives, 3 servings/day ^d	Limit full-fat dairy and/or sugar-sweetened dairy; choose low-fat or fat-free unsweetened dairy or unsweetened dairy alternatives, 3 servings/day ^d	Eliminate full-fat dairy and/or sugar-sweetened dairy; choose fat-free unsweetened dairy or unsweetened dairy alternatives, 3 servings/day ^d
Protein sources [#]	5 ½ oz equivalents/day ^e	5 ½ oz equivalents/day ^e	5 ½ oz equivalents/day ^e	Individualize servings/day

4. Dietary protein:

❖ **High TG** (200-499 mg/dl)

15-20 % of daily energy intake

❖ **Very high TG** (>500 mg/dl)

20 % of daily energy intake

↑ Protein consumption, specially plant protein

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Table 8 Features of healthy dietary patterns that meet nutrition recommendations for hypertriglyceridemia based on triglyceride elevation and presence of chylomicronemia^{*53, 161}

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Legumes (beans, soy), nuts, and seeds	Choose mostly plant protein sources	Choose mostly plant protein sources	Choose mostly plant protein sources; cautiously include nuts and seeds	Choose mostly plant protein sources; eliminate nuts and seeds due to fat content
Fish and seafood	Emphasize fatty fish, ≥ 2 servings/week (8 oz/week)	Emphasize fatty or lean fish, ≥ 2 servings/week (8 oz/week)	Emphasize fatty or lean fish, ≥ 2 servings/week (8 oz/week)	Emphasize lean fish, ≥ 2 servings/week (8 oz/week)
Poultry/meats	Choose lean cuts and avoid processed meats	Choose lean cuts and avoid processed meats	Choose lean cuts and avoid processed meats	Choose very lean cuts without skin and avoid processed meats

5 . Dietary fructose (sugar sweetener beverages, cookies and cakes)

❖ **Borderline TG** (200-499 mg/dl)

➡ **<100** g/d

Fructose in each serving of Fruits: **6-18** g

❖ **High TG** (200–499 mg/dl)

➡ **50-100** g/d

❖ **Very high TG** (>500 mg/dl)

➡ **<50** g/d

Figs, dried; Mango; Grapes, seedless (green or red); Raisins; Pear; Watermelon; Persimmon; Apple

Food groups and intermediate disease markers: a systematic review and network meta-analysis of randomized trials

Lukas Schwingshackl,^{1,2} Georg Hoffmann,³ Khalid Iqbal,¹ Carolina Schwedhelm,^{1,2} and Heiner Boeing^{1,2}

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Results: A total of 66 randomized trials (86 reports) comparing 10 food groups and enrolling 3595 participants was identified. Nuts were ranked as the best food group at reducing LDL cholesterol (SUCRA: 93%), followed by legumes (85%) and whole grains (70%). For reducing TG, fish (97%) was ranked best, followed by nuts (78%) and red meat (72%). However, these findings are limited by the low quality of the evidence. When combining all 10 outcomes, the highest SUCRA values were found for nuts (66%), legumes (62%), and whole grains (62%), whereas SSBs performed worst (29%).

Conclusion: The present NMA provides evidence that increased intake of nuts, legumes, and whole grains is more effective at improving metabolic health than other food groups. For the credibility of diet-disease relations, high-quality randomized trials focusing on well-established intermediate-disease markers could play an important role. This systematic review was registered at PROSPERO (www.crd.york.ac.uk/PROSPERO) as CRD42018086753. *Am J Clin Nutr* 2018;108:576–586.

Lifestyle recommendations for hypertriglyceridemia

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Table 9 Summary of nutrition and lifestyle interventions to lower circulating levels of LDL-C and TG*

Interventions for Lowering LDL-C

- ↓ SFAs, TFAs, and dietary cholesterol
- ↑ UFAs intake (5% TDE replacement for SFAs)
- ↓ Body weight (5-10%), if overweight/obese
- ↑ Protein, especially plant protein (3-5% TDE)
- ↑ Viscous fiber intake (5-10 g/day)
- ↑ Plant stanols/sterols (2 g/day)

Intervention for Lowering TG**

- ↓ Added sugars and refined starches
- ↓ Alcohol
- ↓ Body weight (5-10%), if overweight/obese
- ↑ Protein, especially plant protein (3-5% TDE)
- ↑ EPA+DHA intake (2-4 g/day)
- ↑ Physical activity (≥ 150 minutes/week)[†]

*The dietary strategies summarized are within the context of an overall healthy lifestyle that includes a recommended dietary pattern, adequate physical activity, avoidance of tobacco products, adequate sleep quantity and quality, and psychosocial stress management.

**In addition to the interventions listed, individualize the macronutrient composition of the dietary pattern. Many patients will achieve TG reduction with dietary fat intake in the range of 20-40% TDE, whereas a lower fat diet (<20% TDE) may be needed in a small number of patients to maintain TG <750 mg/dL.

[†] ≥ 150 min/week of moderate-intensity activity (e.g., brisk walking), ≥ 75 min/week of vigorous-intensity activity (e.g., jogging or running), or the equivalent combination, plus 2-3 days/week of muscle strengthening exercises.^{4,5,7,8,143}

Abbreviations: DHA=docosahexaenoic acid; EPA=eicosapentaenoic acid; LDL-C=low-density lipoprotein cholesterol; SFAs=saturated fatty acids; TDE=total daily energy; TG=triglyceride; TFAs=*trans* fatty acids; UFAs=unsaturated fatty acids.

Please cite this article as: Kirkpatrick et al, Nutrition interventions for adults with dyslipidemia: A clinical perspective from the national lipid association, Journal of Clinical Lipidology, <https://doi.org/10.1016/j.jacl.2023.05.099>

AHA SCIENCE ADVISORY

Omega-3 Fatty Acids for the Management of Hypertriglyceridemia

A Science Advisory From the American Heart Association

SUMMARY AND CONCLUSIONS

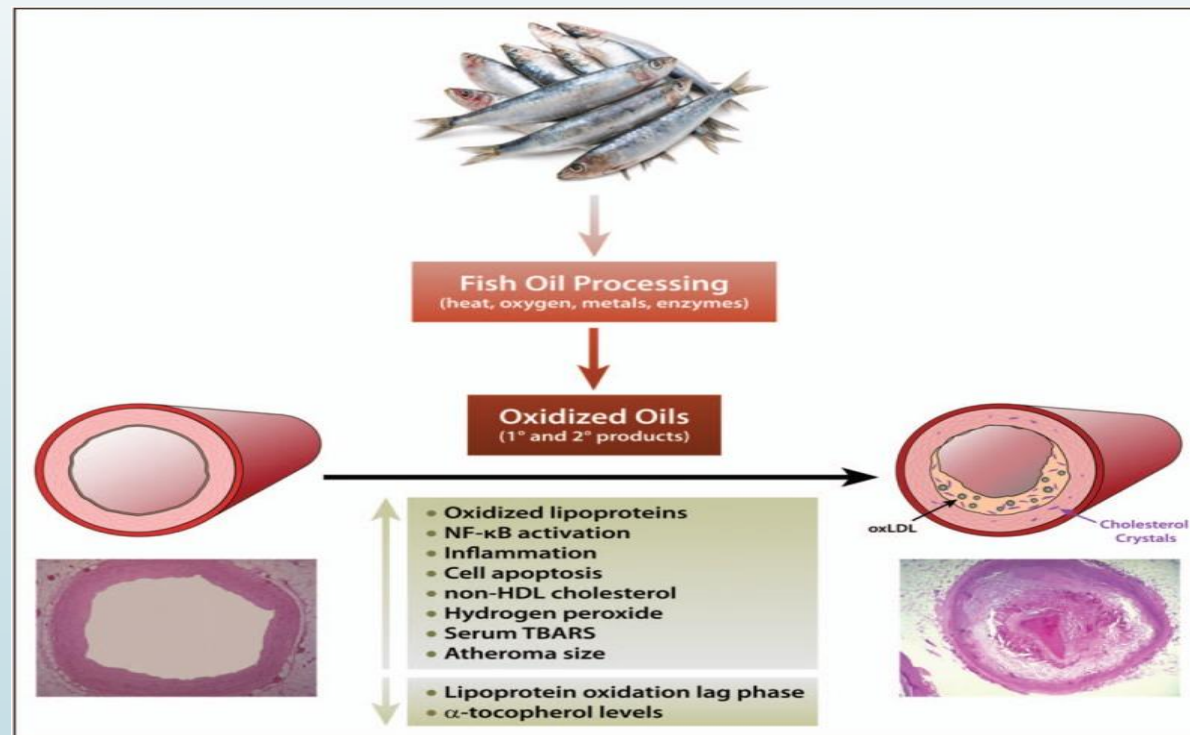
Prescription n-3 FAs at the FDA-approved dose of 4 g/d are safe and generally well tolerated. At this dose, triglyceride lowering of $\geq 30\%$ has been reported in clinical trials of subjects with VHTG (triglycerides ≥ 500 mg/dL), in whom these agents are FDA approved. In VHTG, the goal of therapy is to reduce triglyceride levels to < 500 mg/dL and to lessen the risk of pancreatitis, although this may not be achieved with n-3 FA monotherapy, so additional triglyceride-lowering pharmacological treatment may be indicated. In the context of HTG (triglycerides, 200–499 mg/dL), 4 g/d prescription n-3 FA effectively lowers triglycerides by $\approx 20\%$ to 30% and does not significantly increase LDL-C. In all patients, established recommendations for diet and lifestyle should also be followed.¹¹ In the largest

Lifestyle recommendations for hypertriglyceridemia (cont'd)

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A significant cardiovascular benefit with a highly purified and quality-controlled prescription preparation of **EPA** (4g/day).

Thus, dietary *fish oil supplements should not be considered* an effective substitute for appropriate dosage of prescription O3FA products, which are supported by strict testing and ongoing oversight by FDA.



Lifestyle recommendations for hypertriglyceridemia

1) A practical first step of lifestyle modification: Alcohol restriction

Mild to moderate: 2 drinks/day for men, 1 drinks/day for women

High or TG-induced pancreatitis: Complete abstinence

Implement shared decision-making intervention	TG <500 mg/dL [†]	TG 500-749 mg/dL [†]	TG ≥750 mg/dL [‡]
Added sugars (foods and beverages)	Reduce	Markedly reduce	Eliminate
Total fat (% TDE)	25-35%	Refer to text	Refer to text and Figure 4
Alcohol	Restrict	Abstain completely	Abstain completely
Aerobic activity	At least 150 min/week of accumulated moderate-intensity or 75 min/week of vigorous-intensity aerobic physical activity (or equivalent of both) [§]		
Reduce adiposity	Recommended weight loss goal is 5-10% for patients with increased adiposity		

Nutrition intervention for sever
hypertriglyceridemia ($750 \geq \text{mg/dl}$)

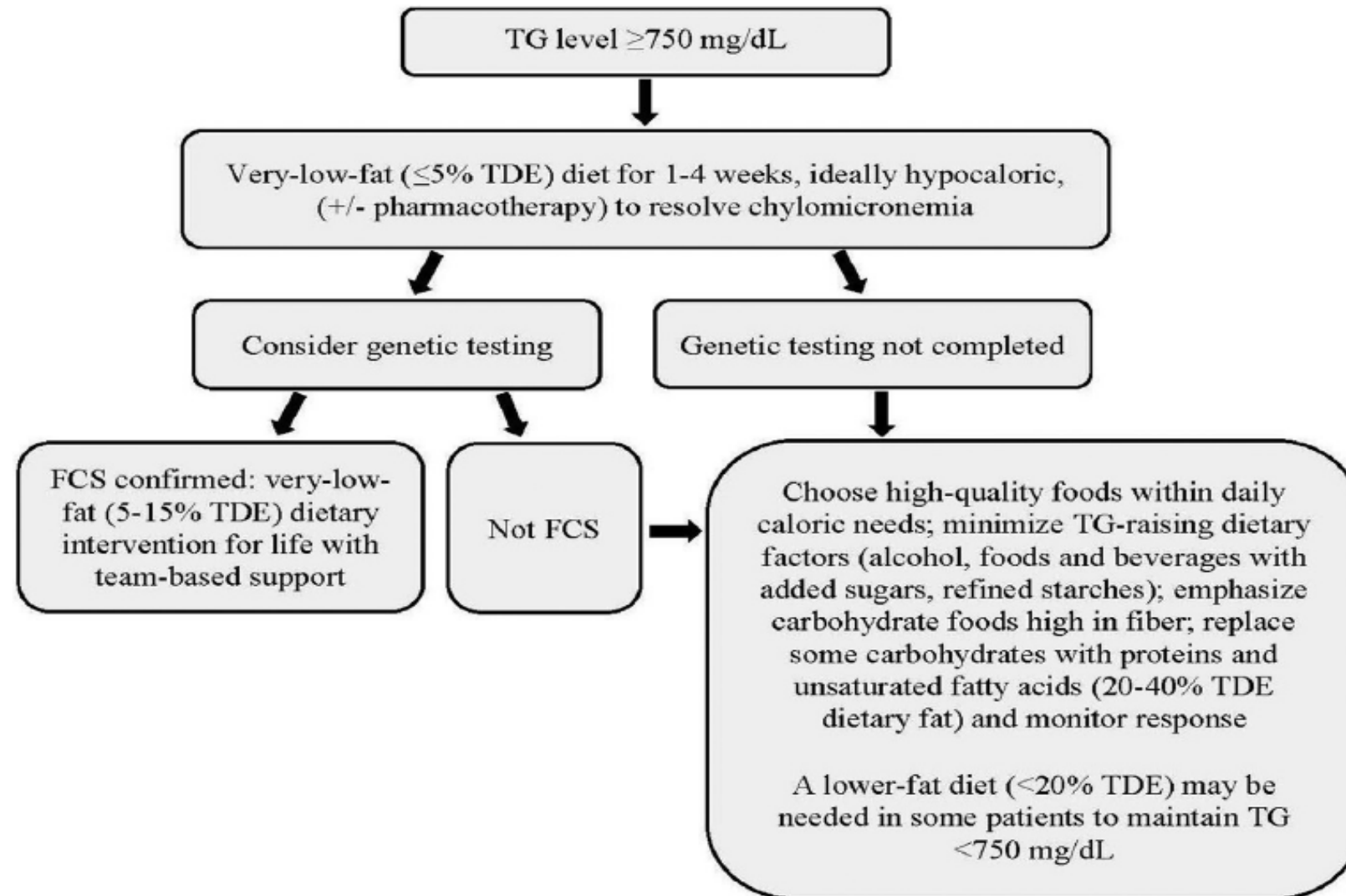


Fig. 4 Algorithm for nutrition interventions for severely elevated triglyceride levels (≥ 750 mg/dL)^{51,144}

Abbreviations: FCS=familial chylomicronemia syndrome; TDE=total daily energy; TG=triglyceride.

Nutrition interventions for FCS and other types of severe LPL deficiency

Nutrition interventions for FCS and other types of severe LPL deficiency

Nutrition therapy for FCS, which also applies to other conditions that produce severe LPL deficiency, differs from other types of hypertriglyceridemia because of the need for marked dietary fat restriction long term to reduce chylomicronemia and prevent potentially life-threatening pancreatitis. Dietary guidance for FCS has been described by Williams et al.¹⁶¹ and includes:

- 1) Limit fat to <15-20 g/day (<10-15% TDE) with dietary fat spread across the day.
- 2) Meet recommendations for essential fatty acids, i.e., α -linolenic acid and linoleic acid.
- 3) Choose complex carbohydrate foods while limiting refined starches. Patients with FCS must avoid alcohol and foods and beverages with added sugars.
- 4) Supplement with fat-soluble vitamins and minerals, as needed.
- 5) Adjust calorie intake and physical activity for weight management.
- 6) If additional calories are needed, the diet may be supplemented with small amounts of medium-chain triglyceride (MCT) oil. Medical-grade MCT oil contains only the medium-chain fatty acids capric and caprylic acids and is not the same as coconut oil or some coconut oil-based MCT oils, which con-

tain lauric acid. Lauric acid is largely metabolized via a chylomicron-dependent pathway. Medical-grade MCT oil should be initiated in small amounts and gradually increased to tolerance. Guidance for the practical aspects of using MCT oil is available from the FCS Focus website (<https://fcsfocus.com/nutrition/nutrition-lifestyle-facts/>).

Additional nutrition recommendations and foods that can be emphasized for patients with and without FCS are summarized in Table 8. The dietary restrictions, while meeting energy needs and nutrient requirements, are challenging for FCS patients to follow. Consequently, it is essential that patients with FCS be referred to an RDN for medical nutrition therapy.^{53,161}

Lifestyle recommendations *(cont'd)*

Carbohydrate counting *(cont'd)*

Food Group	Meal/Snack/Time						Total servings/day	CHO (g)	Protein (g)	Fat (g)	Calories
	Breakfast 7:30 AM	Snack 10:00	Lunch 12:00	Snack 3:00	Dinner 6:30	Snack 10:00					
Starches	2	1	2-3	1	2-3	1-2	10	150	30	10	80
Fruit	1		1		1	0-1	3	45			60
Milk	1				1		2	24	16	2	100
Vegetables			✓		✓			5 10	2 4		25
Meats/ Substitutes	15 %	10 %	25 %	10 %	30 %	10 %	6		7 42	5(3) 30	75(55)
Fats	1 %						5			5 25	45
CHO Choices	3-4 CHO	1 CHO	3-4 CHO	1 CHO	4-5 CHO	1-2 CHO	Total grams	229	92	67	
1900-2000 calories 230 g CHO-50% 90 g protein-20% 65 g fat-30%							Calories/ gram	X4= 916	X4= 368	X9= 603	Total calories
							Percent calories	50	19	30	1900- 2000

Calculations are based on medium-fat meats and skim/very low-fat milk. If diet consists predominantly of low-fat meats, use the factor 3 g, instead of 5 g fat; if predominantly high-fat meats, use 8 g fat. If low-fat (2%) milk is used, use 5 g fat; if whole milk is used, use 8 g fat.

The image shows the interior of a large, historic building, likely a library or a hall. It features a series of repeating brick arches supported by stone pillars. The floor is dark, and the walls are made of red brick. The perspective is looking down a long corridor, creating a sense of depth. The lighting is somewhat dim, with some light coming from the far end of the corridor. There are some orange and white striped markings on the pillars and floor.

از توجه شما
سپاسگزارم